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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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LELIO DANTE GREPPI
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EXAMINER

TRIEU, THAI BA

ART UNIT PAPER NUMBER

3748

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/828,270

Applicant(s)

GREPPI, LELIO DANTE

Examiner

Thai-Ba Trieu

Art Unit

3748

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2005.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 06 August 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the Amendment filed on June 16, 2005.

Claim 1 was amended.

Drawings

The drawings are objected to because of the following minor informalities:

- In Figure 2, ***“steam injection”*** should be replaced by – ***steam injector-- (for incorporating with the terminology that applicant is used to claim in claim 1 and for maintaining the consistency).***

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement-drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- On Page 5, line 9, ***“iron-cobalt-uniquely”*** should be replaced by -- ***iron-cobalt-nickel*** – (for correcting typo error).
- Applicant is suggested to replace the recitation of ***“water injection”*** by the term of -- ***water injector*** -- through out of the specification and claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claim 1 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement thereof, since the recitation of ***“water mass injected from 0 up to 200 percent of aspired air mass”*** (See lines 7-8) and ***“a large insulated pressure vessel, partially filled with hot water, when steam supply exceeds demand, the high-pressure steam is injected into the steam separator, the steam condensed gives up its latent heat, to raise the pressure, temperature, and heat content of the water body, when the steam demand exceeds the supply, the pressure in the accumulator drops and the additional required steam flashes from the water, taking back the heat previously stored; when the supply is superheated steam the accumulator is dried and if the supply exceeds demand, the steam is injected in the medium exchanger of the regenerator, the steam is***

cooled and the heat is recovered", after ***"a steam separator"*** (See lines 38-48) introduce new matters not supported by the original disclosure. The claim(s) contains subject matter, which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. See *In re Daniels*, 144 F.3d 1452, 46 USPQ2d 1788 (Fed. Cir. 1998); *In re Rasmussen* 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).

Claim Suggestions

The following claim 1 is drafted by the examiner and considered to distinguish patentably over the art of record in this application, which is presented to applicant for consideration:

-- 1) An internal combustion engine of open closed cycle and binary fluid comprising:

a dry air filter for cleaning ~~[[the dust of the]]~~ aspired atmospheric air;

a water ~~[[injection]]~~ **injector** twin screw compressor that compresses air and pumps water, oil-free, in a single stage, with air flow from 10 percent up to 100 percent, air pressure ratio from 4:1 up to 20:1 ~~[[and water mass injected from 0 up to 200 percent of aspired air mass]]~~ *(for addressing new matter not supported by the original disclosure)*;

a **high-pressure** water separator ~~[[of high pressure]]~~ to remove the water at high pressure ~~[[of]]~~ **from** the compressed air;

a ~~[[static]]~~ **high-pressure side** regenerator ~~[[, high-pressure-side,]]~~ for recuperative heating of the compressed air *(for addressing new matter not supported by the original disclosure and maintaining consistency with the whole specification and claim);*

a first combustor to burn different types of liquid or gaseous fuels for heating the preheated compressed air in a continuous combustion;

a first ~~[[dry]]~~ twin screw expander with fixed expansion ratio for a first expansion stage of hot gasses from the first combustor at constant maximum peak temperature, ~~[[this]]~~ **the first twin screw** expander drives the compressor *(for addressing new matter not supported by the original disclosure and maintaining consistency with the whole specification and claim);*

a damper ~~[[control]]~~, for ~~[[the regulation of]]~~ **regulating** the amount of hot gasses ~~[[allowed]]~~ **being delivered** into the second combustion chamber, **and** bypassing **the** hot gasses to a regenerative catalytic reactor;

a second combustor to burn different types of liquid or gaseous fuels for reheating the hot gasses and steam injected in a continuous combustion, the fuel injected in the second combustor and the steam injected are cut off simultaneously in idle run;

a second ~~[[dry]]~~ twin screw expander with fixed expansion ratio for a second expansion stage of hot gasses and steam from the second combustor at constant maximum peak temperature, this second **twin screw** expander has the

Art Unit: 3748

output power shaft *(for addressing new matter not supported by the original disclosure and maintaining consistency with the whole specification and claim);*

a regenerative catalytic converter and thermal reactor recovers heat increasing the temperature of exhaust gasses by means of the post combustion of hydrocarbon and carbon monoxide and reducing the nitrogen oxides;

a low-pressure side regenerator ~~[[, low side, where]]~~ wherein the hot exhaust gasses is cooled and the water vapor is condensed;

a steam separator ~~[[, is a large insulated pressure vessel, partially filled with hot water, when steam supply exceeds demand, the high-pressure steam is injected into the steam separator, the steam condensed gives up its latent heat, to raise the pressure, temperature, and heat content of the water body, when the steam demand exceeds the supply, the pressure in the accumulator drops and the additional required steam flashes from the water, taking back the heat previously stored; when the supply is superheated steam the accumulator is dried and if the supply exceeds demand, the steam is injected in the medium exchanger of the regenerator, the steam is cooled and the heat is recovered]]~~ wherein the high-pressure steam coming out of the first and second twin screw expanders is injected *(for addressing new matter not supported by the original disclosure);*

~~[[an]]~~ a water ejector combines a high-pressure fluid with a low-pressure fluid to form an intermediate-pressure fluid supply *(for consistency with the specification);*

Art Unit: 3748

a condenser ~~[[, cooled by natural or forced circulation of atmospheric air through it]]~~ to recover water from the exhaust gasses and steam *(for addressing new matter,*

a low-pressure water separator, wherein the injected water and the water are generated by combustion is removed from the exhaust gasses, ~~[[them]]~~ and then the exhaust gasses are discharged right to the atmosphere;

an insulated water tank with a filter for the solid removal and to neutralize oxides, acid and sulfur dioxide;

a water pump transfer water from the insulated water tank to ~~[[the]]~~ a ~~[[water]]~~ cooler; the water is supplied through a water injector to cool down the water-injection twin compressor;

~~[[a water cooler, cooled by natural or forced circulation of atmospheric air for cooling the water;]]~~

~~[[a water injection in compressor for internal cooling;]]~~

~~[[a water flow control of internal cooling in the two expanders for steam generation;]]~~

a water flow control/ water flow from the high-pressure water separator being supplied to the first twin-screw expander and the second twin-screw expander;

a steam injector in the damper ~~[[control of]]~~ controlling hot gasses ~~[[for]]~~ to be delivered to the second twin-screw expander.—

Conclusion

This action is a **final rejection** and is intended to close the prosecution of this application. Applicant's reply under 37 CFR 1.113 to this action is limited either to an appeal to the Board of Patent Appeals and Interferences or to an amendment complying with the requirements set forth below.

If applicant should desire to appeal any rejection made by the examiner, a Notice of Appeal must be filed within the period for reply identifying the rejected claim or claims appealed. The Notice of Appeal must be accompanied by the required appeal fee of \$250 (for Small Entity).

If applicant should desire to file an amendment, entry of a proposed amendment after final rejection cannot be made as a matter of right unless it merely cancels claims or complies with a formal requirement made earlier. Amendments touching the merits of the application which otherwise might not be proper may be admitted upon a showing a good and sufficient reasons why they are necessary and why they were not presented earlier.

A reply under 37 CFR 1.113 to a final rejection must include the appeal from, or cancellation of, each rejected claim. The filing of an amendment after final rejection, whether or not it is entered, does not stop the running of the statutory period for reply to the final rejection unless the examiner holds the claims to be in condition for allowance. Accordingly, if a Notice of Appeal has not been filed properly within the period for reply, or any extension of this period obtained under either 37 CFR 1.136(a) or (b), the application will become abandoned.

Art Unit: 3748

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (571) 272-4867. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (571) 272-4859. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
June 22, 2005



Thai-Ba Trieu
Primary Examiner
Art Unit 3748